

ZYRYANOV, T.P.; KURGGOD, G.A.; MIL'CHENKO, A.V.; SHKOV, V.V.

Selecting the structure and parameters of rolling at the Maslyanskiy
Mine. Bezop.truda v prom. 5 no.1:12-13 Jan. 1981. (MIRA 17:2)
(Altai Territory--Mining and Metallurgy)

YERGALIYEV, Aodesh Yergaliyevich; YURKOV, Viktor Nazarovich; OSIPOV,
Aleksandr Vasil yevich; ZYRYANOV, Timofey Pavlovich; KUZNETSOV,
Yu.N., red.; ROROKINA, Z.P., tekhn. red.

[Systems of working ore deposits of minor and average thickness]
Sistemy razrabotki rudnykh mestorozhdenii maloi i srednei moshchno-
sti. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SSR, 1961. 205 p.
(MIRA 14:7)

(Mining engineering)

ZYRYANOV, T.P.; KOROGOD, G.A.; MIL'CHENKO, D.V.; YURKOV, V.N.

Selecting the structure and parameters of bolting at the Maslyanskiy
Mine. Bezop.truda v prom. 5 no.1:12-13 Ja '61. (MIRA 1/2)
(Altai Territory—Mine roof bolting)

VARAKSIN, Vadim Nikolayevich; SHILKIN, Petr Ivanovich; ZYRYANOV,
Timofey Pavlovich; KOROGOD, Grigoriy Alekseyevich;
MIL'CHENKO, Dmitriy Vladimirovich; POLYAKH, V.A., otv.
red.; VUROS, R.F., red.; UTEPOV, Zh.K., tekhn. red.

[Rod bolting in the Rudnyy Altai] Shtangovaia krep' na
Rudnom Altae. Alma-Ata, TSentr. in-t nauchn.-tekhn.
informatsii, 1960. 19 p. (MIRA 17:2)

ABAYEV, V., podpolkovnik; ZYRYANOV, V., podpolkovnik; LEHEDSV, D., polkovnik;
SHASHKOV, A., podpolkovnik

Solution of tactical problems numbers 1-3, published in number 3
of the periodical. Voen. vest. 38 no.7:22-24 J1 '58. (MIRA 11:6)
(Tactics) (Infantry drill and tactics) (Tank warfare)

ZYRYANOV, V., starshiy inspektor spasatel'noy sluzhby (g.Khabarovsk)

Among divers of the Soviet Far East. Voenn. znan. 38 no.7:32
Jl '62. (MIRA 15:6)

(Amur River—Lifesaving) (Diving, Submarine)

ACCESSION NR: AP4038770

S/0048/64/028/005/0823/0824

AUTHOR: Shuvayev, A.T.; Zyryanov, V.G.; Gorskiy, V.V.

TITLE: Investigation of the K fluorescence spectrum of calcium in several compounds [Report, Seventh Conference on X-Ray Spectroscopy held in Yerevan 23 Sep to 1 Oct 1963]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.5, 1964, 823-824

TOPIC TAGS: x-ray spectrum, calcium compound, line shift, line shape

ABSTRACT: The calcium $K\alpha_{1,2}$, $K\beta_1$, and $K\beta_5$ lines in the spectra of CaC_2 , CaO and CaF_2 were recorded in order to detect the influence of the calcium ion charge and the surrounding atoms on the spectra. The spectra were excited by the radiation from a 30 kV copper anode x-ray tube and were recorded photographically in the second order using a best quartz crystal vacuum spectrometer with a resolution of 10 000. Relative intensity measurements of the $K\beta_1$ and $K\beta_5$ lines were facilitated by employing two films, one behind the other; this resulted in a $K\beta_1$ image on the second film comparable in density with the $K\beta_5$ image on the first. No difference in the $K\alpha$ spectra of the three compounds could be discerned. This is in agreement with pre-

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ACCESSION NR: AP4038770

vious calculations (A.T.Shuvayev, Izv.AN SSSR, Ser.fiz.25,986,1961; M.A.Blokhin and A.T.Shuvayev, Ibid.26,429,1962), according to which the s and p valence electrons should not be able appreciably to affect the K α lines. The K β_1 line in CaF $_2$ was shifted by 0.4 eV toward the shorter wavelengths compared with its position in CaC $_2$ and CaO. The presence of this shift is in accord with previous conclusions (loc.cit) but the observed agreement between the positions of K β_1 in CaC $_2$ and CaO is not understood. A large shift (2.5 eV) and gross changes in line shape were observed in K β_5 , indicating that the influence on this line of the valence electrons is considerable. Orig.art.has: 1 figures and 2 tables.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet (Rostov-on-the-Don State University)

SUBMITTED: 00

DATE ACQ: 12Jun64

ENCL: 00

SUB CODE: OP

NR REF SOV: 002

OTHER:000

Card2/2

ZYRYANOV, V.N.; PUTALOVA, R.V.

Metasomatic facies and accessory minerals of the Arsalan Massif.
Izv. AN Kazakh. SSR Ser. geol. 22 no. 6:26-34 N-D '65
(MIRA 19:1)

1. Institut geologicheskikh nauk imeni K.I. Satpayeva, Alma-Ata.

ZYRYANOV, V.N.

Age of plagiogranite intrusions in the Chingiz-Tau. Izv. AN Kazakh.
SSR. Ser. geol. no. 4: 78-82 '62. (MIRA 15:7)
(Chingiz-Tau-Granite) (Geological time)

DETSKYAN, A.K., inzh.; ZYRYANOV, V.P., inzh.

Laying a gas pipeline at ground level. Stroi. truboprov. 7
no.12:5-7 D '62. (MIRA 16:1)

1. Giprospekgaz, Leningrad.
(Gas, Natural—Pipelines)

ZYRYANOV, V.N.

Alkali granitoid formation in the Chingiz zone. Trudy Inst. geol.
nauk AN Kazakh. SSR 12:113-128 1965. (MIRA 18:9)

MILOVANOV, A.F., kand.tekhn.nauk; ZYRYANOV, V.S., inzh.

Functioning of fire-resistant reinforced concrete elements
under axial compression and uneven heating. Bet. i zhel.-bet.
8 no.7:331-333 J1 '62. (MIRA 15:7)
(Precast concrete--Testing)
(Beams and girders)

85387

S/032/60/026/010/022/035

B016/B054

188200

AUTHORS: Milovanov, A. F. and Zyryanov, V. S.

TITLE: Measurement of Deformations in Structures at High Temperatures *20*

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 10, p. 1151

TEXT: The authors developed a method of measuring radial and vertical deformations of the hot interior of hollow cylinders. For this purpose, they used rods (tyaga) of quartz glass with a low temperature coefficient of elongation ($0.4 \cdot 10^{-6}$) as compared with concrete and steel. Rods, 15 mm in diameter, were attached to the hot surface of the structure to be tested. The quartz glass used was tube- or rod-like, 4-20 mm in diameter, and of different lengths depending on the size of the structure. The radial deformations were measured with the aid of four rods which lay in two diameters perpendicular to each other. The inner ends of the quartz rods were curved like hooks. These hooks were attached to nichrome-band anchors. Pairs of differently long quartz tubes were used to measure

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Measurement of Deformations in Structures
at High Temperatures

S/032/60/026/010/022/035
B016/B054

longitudinal deformations. The difference in length of quartz rods was used as a basis for deformation measurements. Deformations at temperatures of up to 1200°C were measured in this way. The method suggested can be used both in experiments and at the beginning of operation of heat generators working at high temperatures.

ASSOCIATION: Institut betona i zhelezobetona Akademii stroitel'stva
i arkhitektury SSSR
(Institute of Concrete and Reinforced Concrete of the
Academy of Building and Architecture, USSR)

Card 2/2

ZYRYANOV, V.S., kand.tekhn.nauk

Computing the crack resistance of prestressed concrete
smokestack shafts. Bet.1 zhel-bet. 9 no.5:229-233 My '63.
(MIRA 16:6)

(Smokestacks)

(Prestressed concrete)

MILOVANOVA, A.F., kand.tekhn.nauk; ZYRYANOV, V.S., inzh.

Tensile strength and compression of heat resistant reinforced
concrete construction elements subjected to nonuniform heating.

Bet.i zhel.-bet. no.7:310-316 JI '60. (MIRA 13:7)
(Girders--Testing) (Electric heating)

82070

S/097/60/000/07/01/003

15.3200

AUTHORS:

Milovanov, A.F., Candidate of Technical Sciences, Zaryanov, V.S.
Engineer

TITLE:

Effect of Compression and Tension on Heat-Resistant Reinforced Concrete Elements Subject to Non-Uniform Heating

PERIODICAL:

Beton i Zhelezo-Beton, 1960, No. 7, pp. 310 - 316

TEXT:

The laboratory of heat-resistant and chemically stable constructions of NIIZhB ASIA has conducted experimental investigations pertaining to compression and tension of structural elements under non-uniform heating. The object of the investigation was to test the method of calculation developed by Professor V.I. Murashev, to determine rigidity and strength of heat-resistant reinforced concrete elements, as well as width of cracks, developing in the elements subject to simultaneous action of load and temperature. The article describes test beams and methods by which the tests were performed at temperatures of 150, 300, 500 and 700°C. Compression and tensile forces were raised up to 50% of breaking point. The article explains the method of measuring deflections and taking temperatures, and gives a number of formulae for determining deflection, relative height of compressed zone, coefficient of tensile force, coefficient of effect of tension on

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3/097/60/000/07/01/003

Effect of Compression and Tension on Heat-Resistant Reinforced Concrete Elements
Subject to Non-Uniform Heating

extended concrete, and residual temperature moment; the theoretic value of carrying capacity of beams is determined by formula NITU 123-55 for central tension. The article mentions the names of V.M. Milonov and B.A. Al'tshuler Candidates of Technical Sciences. The average theoretical deflection of the reinforcement corresponds to the experimental values at all stages of temperature and loads. Experiments have established that the tensile force causes a lowering of the temperature moment brought about by non-uniform heating. The carrying capacity of the reinforced concrete elements was characterized by the attainment of the yield point of the reinforcement, while the drop of temperature did not interfere with the tensile strength. Experimental values of carrying capacity were determined by the extent of deflection corresponding to attaining the yield point of the reinforcement. The mean arithmetical value of deviation of experimental values from theoretical ones was +5%, while maximum values were +25 and -15%. From Graph 5 it can be seen that the theoretical width of cracks corresponds to experimental values. Table 1 gives the carrying capacities of beam under tension and Table 2 those of beams under compression. In calculating the carrying capacities it is

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S/097/60/000/07/01/003

Effect of Compression and Tension on Heat-Resistant Reinforced Concrete Elements
Subject to Non-Uniform Heating

necessary to make allowance for a decrease in strength of concrete and reinforcement at rising temperature. There are 1 diagram, 2 tables, 6 graphs, 1 Soviet reference and 10 formulae.

X

Card 3/3

MILOVANOV, A.F.; ZYRYANOV, V.S.

Abrasion-resistance of heat-resistant concrete at high temperatures.
Ogneupory 25 no.5:234-237 '60. (MIRA 14:5)

1. Nauchno-issledovatel'skiy institut betona i zhelezobetona
Akademii stroitel'stva i arkhitektury SSSR.
(Concrete) (Mechanical wear)

ZYRYANOV, Ye.G.; KOLEVATOV, P.A.; OSIPOV, Yu.A.; KOZHEVNIKOV, V.N.

Industrial testing and introduction of dry PermNIUI-4 dust
collectors at the Lenin Mine of the Kizelugol' Combine.
Nauch. trudy PermNIUI no.6:215-223 '64.

(MIRA 18:2)

OSIPOV, Yu.A.; KOLEVATOV, P.A.; SYSUYEV, V.A.; ZYRYANOV, Ye.G.; KUCHERSKIY,
L.V.

Preventing bumps in coal mines by pressing water into the seam. Biv.
tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekhn.inform. 17 no.1:
12-13 J1 '64. (MIRA 17:10)

ZYRYANOV, Ye.G.; OSIPOV, Yu.A.; P'YANKOV, A.P.; UTKIN, S.A.

Dust collecting equipment for use in rock drilling in the
Kizel Basin. Nauch. trudy Perm NIUI no. 4:146-155 '62.
(MIRA 17:6)

ZYRYANOV, Ye.G.; KOLEVATOV, P.A.; OSIPOV, Yu.A.

Introduction of the PERMIUI-4 dust collector. Hhul. tekhn.-ekon.
inform. Gos. nauch.-issl. inst. nauch. i tekhn. inform. 17 no.6:
26-27 Je '64. (MIRA 17:11)

ZYRYANOVA, A. N.

"Dynamics of the Accumulation of Copper and Cobalt in the Fruit of Feed Melon Plantings Under Conditions in the Gissar Valley." Cand Agr Sci, Inst of Animal Husbandry, Acad Sci Tadzhikistan SSR, Stalinabad, 1954. (KL, No 5, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (13)

SO: Sum. No. 598, 29 Jul 55

8 (6)

SOV/91-59-11-2/27

AUTHOR: Melent'yev, V.A., and Zyryanov, V.P., Engineers

TITLE: Operational Adjustments of MP-VTI Wet Ash Traps

PERIODICAL: Energetik, 1959, Nr 11, pp 3-6 (USSR)

ABSTRACT: The authors report on the operational adjustments required for achieving a proper functioning of the MP-VTI scrubbers which replaced the cyclones on a TKP-3 boiler at the Chelyabinsk TETs. The boiler was fired with pulverized ($R_{88} = 18 - 20\%$) hard coal from Ekibastuz. Its output was 160/200 tons/h. The ash content of the coal was 38-42%. The wet ash traps (scrubbers) MP-VTI have a number of advantages over other systems, for example the TsS-VTI centrifugal ash traps. However, the MP-VTI scrubbers show a number of deficiencies which were eliminated partially at the Chelyabinsk TETs. A number of problems remained unsolved, especially in selecting the proper material. For example, the wooden lining used is not suitable. Other materials are not corrosion resistant enough and are

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SOV/91-59-11-2/27

Operational Adjustments of MP-VTI Wet Ash Traps

corroded by the acid content of the ash sludge. The spray nozzles of the cylindrical part of the scrubber are not efficiently designed. Problems of material corrosion by the acid content of the sludge must still be solved. There are 4 diagrams and 1 table.

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MILOVANOV, A.F., kand.tekhn.nauk; ZYRYANOV, V.S., inzh.

Heatproof reinforced concrete chimneys. Prom. stroit. 38
no. 12:32-35 '60. (MIRA 13:12)

1. Nauchno-issledovatel'skiy institut betona i zhelezobetona
Akademii stroitel'stva i arkhitektury SSSR.
(Chimneys)

MILOVANOV, A.F.; ZYRYANOV, V.S.

Measurement of deformations in parts at high temperatures. Zav. lab.
26 no.10:1151 '60. (MIRA 13:10)

1. Institut betona i zhelezobetona Akademii stroitel'stva i arkhitektury SSSR.
(Strength of materials) (Deformations (Mechanics))

ZYRYANOV, V.S., inzh.

Experimental investigations of the performance of heat-resistant
reinforced concrete chimney shafts. Prom.stroi. 8 no.7:
45-50 '60. (MIRA 13:7)

1. Nauchno-issledovatel'skiy institut betona i zhelezobetona
Akademii stroitel'stva i arkhitektury SSSR.
(Chimneys)

MUSTAFAYEV, I.A.; GERTSEN, P.P., kand.tekhn.nauk; ZYR'YANOV, Ye.G.

Controlling dust during the drilling of boreholes in thin stopes.
Bor'ba s sil. 5:129-131 '62. (MIRA 16:5)

1. Permiskiy nauchno-issledovatel'skiy ugol'nyy institut.
(Mine dusts—Prevention)(Boring machinery—Equipment and supplies)

ZYRYZNOVA, A.N.

USSR / Cultivated Plants. Plants for Technical Use.
Oil Plants! Sugar Plants.

M

Abs Jour : Ref Zhur - Biol., No 8., 1958, No 34724

Author : Zyryznova, A. N.

Inst : AS TadzhSSR

Title : Content of Boron in the Organs of Soviet
Thin-Fibrous Cotton Plants.

Orig Pub : Izv. Otd. iestestv. nauk AN TadzhSSR, 1957,
No 18, 163-167

Abstract : Cited are the results of the analysis of various
organs of the cotton plant varieties 504-V and
5904-I for ascertaining their boron content
(gross content of air-dry matter), as determined
by the Qualizarin method. The cotton plant of
the variety 504-V, with a cotton wool yield of
25 hwt/h, contained in its above soil mass

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ZYRYANOVA, A.N.

Total manganese content of the principal soils of southern
Tajikistan. Dokl. AN Tadzh. SSR 3 no.1:27-30 '60. (MIRA 13:12)

1. Institut pochvovedeniya AN Tadzhikskoy SSR. Predstavleno
akademikom AN Tadzhikskoy SSR I.N.Antipovym-Karatayevym.
(Tajikistan--Soils--Manganese content)

ZYRYANOVA, A.N.

Total and water-soluble boron in the principal soils of southern
Tajikistan. Dokl. AN Tadzh. SSR 1 no. 4:33-36 '58. (MIRA 13:4)

1. Institut pochvovedeniya AN Tadzhikskoy SSR. Predstavleno
akademikom AN Tadzhikskoy SSR I.N. Antipovym-Karatayevym.

(Tajikistan--Minerals in soil)
(Boron)

ZYRYANOVA, A.N.

Boron content of plant parts of Soviet fine-stapled cotton. Izv. Otd.
est. nauk AN Tadzh. SSR no. 18:163-166 '57. (MIRA 11:8)

1. Institut pochvovedeniya, melioratsii i irrigatsii AN Tadzhikskoy
SSR.

(Boron)
(Cotton)

OKUNTSOV, M.M.; ZYRYANOVA, G.D.

Effect of herbicides on metabolism in plants. Izv. Tomsk.
otd. VBO 4:87-90 '59. (MIRA 14:6)

1. Kafedra fiziologii i biokhimii rasteniy Tomskogo gosudarstvennogo
universiteta imeni V. V. Kuybysheva.
(Plants—Metabolism)
(Plants, Effect of chemicals on)

ZYRYANOVA, G.P.

Role of exercise therapy in a compound treatment of traumatological patients. Vop. travm. i ortop. no.13:95-99 '63. (TRA 18:2)

1. Glavnyy vrach Sakhalinskogo oblastnogo vrachebno-fizkul'-turnogo dispansera.

ZYRYANKOVA, L. N.

REPORT
... ..

ZYRYANOVA, L. N.

USSR/Nuclear Physics - Beta-Decay
Theory

May/Jun 52

"Tensor Variant of Interaction in Beta-Decay Theory
and Spectra of Second-Order Prohibited Transi-
tions," L. N. Zyryanova, L. A. Sliv, Leningrad
Phys-Tech Inst, Acad Sci USSR.

"Iz Ak Nauk SSSR, Ser Fiz" Vol 16, No 3, pp 310-313

Report heard 5 Feb 52 in Acad Sci USSR. Presents
arguments for the tensor variant of interaction in
the theory of beta-decay. In this connection the
authors study the beta-spectrum of RaE and its Fermi
graph.

232194

ZYRYANOVA, L. N.

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Nuclear Phenomena

9-22-54
Rmz

Masses of light nuclei. B. S. Dzhalilov and L. N. Zyryanova. *Dokl. Akad. Nauk* 48, 466-470 (1952); *ibid.* 49, 100-103 (1953). The values of nuclear masses are computed for $Z \leq 20$; all the exp. data available before Mar. 1, 1952 are taken into consideration. The relevant data are listed, and the method of least squares is used in evaluating them. Primarily, mass values obtained from nuclear reaction energies and from mass-spectroscopic doublets are used. The results of microwave methods of detg. mass differences are taken into consideration, but it is pointed out that these methods are not yet as reliable as others. The results for mass defects and at. masses are tabulated for all the known nuclides up to Ca⁴⁸. For the more important nuclides the mass values are compared with the tabulated values of Mattauch and Flammerfeld (C.A. 43, 6902g), Li, et al. (C.A. 45, 8906h), Ewald (C.A. 46, 2903d), and Collins, et al. (C.A. 40, 2020f). On the av., the probable error is about 1/10 of the probable error in these previous tabulations. These mass values are: $H^1 = 1.0081400 \pm 0.0000013$, $H^2 = 2.0147411 \pm 0.0000024$, $He^3 = 3.017003 \pm 0.000005$, $He^4 = 4.0038773 \pm 0.0000027$, $Li^6 = 6.017038 \pm 0.000006$, $Li^7 = 7.016238 \pm 0.000007$, $Be^9 = 9.015013 \pm 0.000006$, $Be^{10} = 10.014118 \pm 0.000008$, $B^{10} = 11.012796 \pm 0.000006$, $B^{11} = 12.012917 \pm 0.000006$, $C^{12} = 12.007825 \pm 0.000005$, $C^{13} = 14.007681 \pm 0.000006$, $N^{14} = 15.004877 \pm 0.000007$, $N^{15} = 17.004530 \pm 0.000007$, $O^{16} = 16.004434 \pm 0.000005$, $O^{17} = 17.999160 \pm 0.000005$, $O^{18} = 18.998403 \pm 0.000006$, $F^{19} = 18.998403 \pm 0.000006$, $Ne^{20} = 19.992646 \pm 0.000004$, $Ne^{21} = 20.994034 \pm 0.000004$, $Ne^{22} = 21.991385 \pm 0.000004$, $Na^{23} = 22.989769 \pm 0.000003$, $Na^{24} = 23.990962 \pm 0.000003$, $Mg^{24} = 23.985042 \pm 0.000003$, $Mg^{25} = 24.985836 \pm 0.000003$, $Mg^{26} = 25.982593 \pm 0.000003$, $Si^{28} = 27.976927 \pm 0.000003$, $Si^{29} = 28.976495 \pm 0.000003$, $Si^{30} = 29.973762 \pm 0.000003$, $P^{31} = 30.973762 \pm 0.000003$, $S^{32} = 31.972071 \pm 0.000003$, $S^{33} = 32.971458 \pm 0.000003$, $S^{34} = 33.970459 \pm 0.000003$, $Cl^{35} = 34.968853 \pm 0.000003$, $Cl^{36} = 35.967000 \pm 0.000003$, $Ar^{36} = 35.967000 \pm 0.000003$, $Ar^{38} = 37.962732 \pm 0.000003$, $Ar^{39} = 38.963707 \pm 0.000003$, $K^{39} = 38.963707 \pm 0.000003$, $K^{40} = 39.964000 \pm 0.000003$, $Ca^{40} = 39.962593 \pm 0.000003$. B. Gorn.

DZHELAPOV, B.S.; ZYRYANOVA, L.N.; ZENDEL', M.Ye., tekhnicheskiy redaktor

[Influence of the electric field of the atom on beta decay] Vliianie
elektricheskogo polia atoma na beta-raspad. Moskva, Izd-vo Akademii
nauk SSSR, 1956. 312 p. (MLRA 9:10)
(Beta rays)

Zyryanova, L.N.

USSR/ Physical Chemistry - Atomic Nucleus

B-2

Abs Jour : Referat Zhur - Khimiya, No 3, 1957, 7125

Author : Zyryanova, L.N. and Krutov V.A.

Inst : Academy of Sciences USSR

Title : Calculation of the Probability of Pair Conversion
During O-O Nuclear Transitions

Orig Pub : Izv. AN SSSR, Physical Series, 1956, Vol 20, No 3,
312-317

Abstract : The form of the positronic conversion spectra produced by O-O transitions in ^{64}Zn , ^{72}Ge , and ^{84}Se nuclei has been investigated, and a formula has been derived for calculating the probability of the transitions. In the calculation it is assumed that the potential for the O-O transition has spherical symmetry. The potential Q is assumed to be non-zero only within the boundaries of the nucleus. The calculation is carried out on the basis of the relativistic approximation. The ψ -function for the

Card 1/2

- 1 -

ZYRYANOVA, L. N.; MIKHAYLOV, V. M.

"New Tables of the Fermi Function $f_0(E_0Z)$."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22
Feb 64.

LGU (Leningrad State Univ)

ZYRYANOVA, L. N.

"The Dependence of the Wave Function of the Beat-minus on the Value of the Nuclear Radius in the Case of Forbidden Transitions."

"New Tables of the Function $F(E, Z)$."

reports submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

LGU (Leningrad State Univ)

5/048/63/027/002/0.2/023
B104/E160

AUTHORS: Zyryanova, L. N., and Mikhaylov, V. M.
TITLE: An analysis of the β -decay of the nuclei $\text{Bi}^{210}(\text{RaE})$, $\text{Pb}^{210}(\text{RaD})$,
and Pb^{209} and the wave function of RaE
PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 27,
no. 2, 1963, 235 - 245

TEXT: The first forbidden β -transitions near the double-magic shell $Z = 82$, $N = 126$ have been studied to find the spectra of the decaying nuclei. The wave function $\psi(\text{RaE}) = a(h_{1/2}^{+11/2}) + b(h_{9/2}^{+5/2})$ is used where a and b are the amplitudes of the components (N. Newby, Jr. E. T. Konopinski, Phys. Rev., 115, 251, 1959); P. Banerjee, B.-D. Zeh, Z. Phys., 144, 195, 1955. Data are analyzed on the spectrum, polarization, the β -decay of RaE and of the neighboring Pb^{209} and Pb^{210} nuclei and assessments of the ratio b/a in the RaE wave function are made. First it is shown that it is nearly proportional to x : $ft \approx (9.70x + 0.19) \cdot 10^6$, where
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3/249/65/027, 107, 111/023
31 1 3'37

in the case of the p-decay ...

$$x = \frac{C_V}{C_A} \frac{i(r)}{(\sigma \times r)}; \quad y = \frac{C_V}{C_A} \frac{\langle z \rangle}{(\sigma \times r)}$$

x and y values are given in the table. With these parameters the wave function of RaE is analyzed. First the relation of x and y with the wave function is studied (Fig. 2). Then the radial integrals

$$F(1h \rightarrow 1i) = \frac{\delta^{1/2}}{(1 + \delta^2)^{1/2}} \sqrt{\frac{13}{5}} p, \quad (15a)$$

$$F(1h \rightarrow 2g) = -\frac{15\delta^2 - 11}{4} \cdot \frac{\delta^{1/2}}{(1 + \delta^2)^{1/2}} \frac{p}{2}, \quad (15b)$$

$$\lambda = -\sqrt{\frac{2}{13} \frac{15\delta^2 - 11}{4\delta^2}}. \quad (16)$$

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$$\delta = \frac{p(h)}{p(g)} \approx 1.2.$$

An analysis of the 3-term

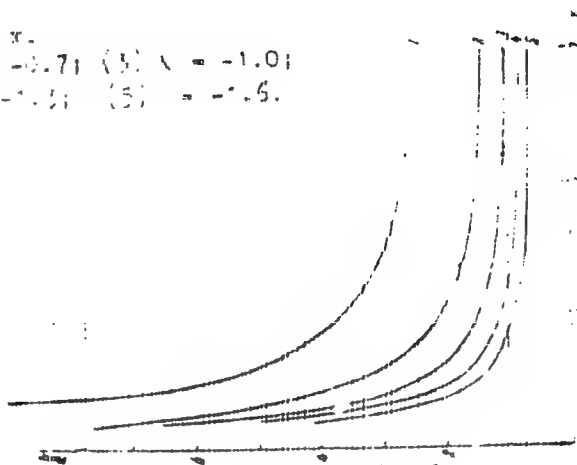
S 049/63 007/000/014/021
011/0100

and developed and the results of the analysis are plotted in Fig. 1. The results of the analysis are plotted in Fig. 1. The results of the analysis are plotted in Fig. 1.

Fig. 2. b/a as a function of x .

Legend: (1) $\lambda = -0.4$; (2) $\lambda = -0.7$; (3) $\lambda = -1.0$;
(4) $\lambda = -1.3$; (5) $\lambda = -1.6$.

Fig. 2



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S/C48/63/021/002/012/073
B104/B180

An analysis of the β -decay...

Fig. 5. ft of RaE as a function of x .

Legend: (1) $\lambda = -0.4$; (2) $\lambda = -0.55$; (3) $\lambda = -0.7$; (4) $\lambda = -1.0$; (5) $\lambda = -1.5$

Table. Results of an analysis of the spectrum of RaE.

Legend: (1) taking no account of the third forbidden transition; (2) taking account of the third forbidden transition.

Table

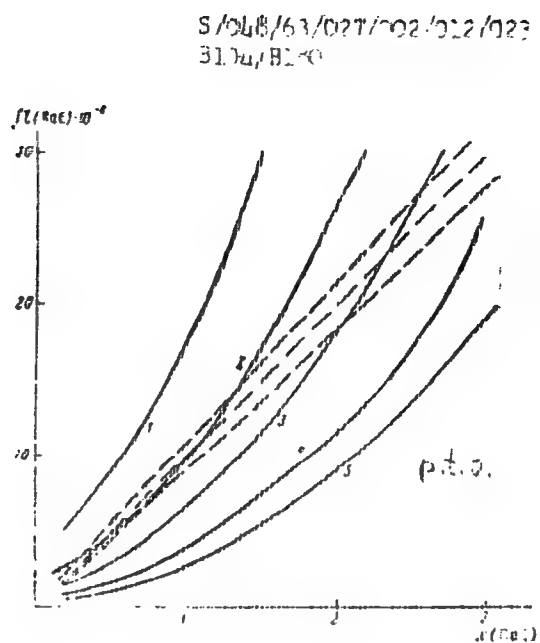
Eos yam III inspection (1)		Eos yam III (2)		
x	y	x	y	y
0.3	1.90	0.6	25.79	0.04
0.5	10.8	1.0	3.38	0.02
0.7	17.90	1.5	28.30	0.07
0.9	18.18	1.8	14.30	0.07
1.1	13.32	2.2	50.02	0.05
		2.6	46.20	0.05
		3.0	41.50	0.07

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An analysis of the β -decay...

Fig. 3

Card 5/5



ZYRYANOVA, L.N.

Shielding effect for forbidden β^- -spectra. Izv. AN SSSR.
Ser. fiz. 26 no.1:148-149 Ja '62. (MIRA 15:2)

1. Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova.
(Nuclear models)
(Beta rays—Spectra)

ZYRYANOVA, L.N.; PANTYUSHIN, A.A.

Correction to the form of allowed β^- -spectra, which is accounted for by matrix elements of the relativistic operators and γ . 5. Izv. AN SSSR Ser. fiz. 26 no.1:150-152 Ja '62. (MIRA 15:2)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.
(Beta rays--Spectra)
(Nuclear reactions)
(Operators(Mathematics))

ZYRYANOVA, L.N.

[Unique beta-transitions] Unikal'nye beta-perekhody. Lenin-
grad, Izd-vo Akad. nauk SSSR, 1959. 96 p. (MIRA 15:2)
(Nuclear reactions)

S/048/62/026/001/016/018
B125/B104

AUTHOR: Zyryanova, L. N.

TITLE: Screening effect for forbidden β -spectra

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26,
no. 1, 1962, 148 - 149

TEXT: The method of L. A. Sliv (Zh. eksperim. i teor. fiz., 17, 1049 (1947)) has been used to calculate the coefficients of the electron wave functions L, M, N, P, Q, and R, contained in the expressions for the forbidden β -decay probability, allowing for the Coulomb field, the finite de Broglie wavelength for a uniformly charged spherical nucleus of radius $R = 1.2 A^{1/3} \cdot 10^{-13}$ cm. The calculation technique has been described in detail by L. N. Zyryanova and B. S. Dzhelepov (Vliyaniye elektricheskogo polya atoma na beta-raspad - Effect of an electric field on the β -decay - Izd. AN SSSR, M.-L., 1956). The corrections for screening have been determined using tables of I. M. Band, V. I. Guman, and G. A. Sogomonova (Tablitsy radial'nykh funktsiy i faz elektronov - Tables of radial functions

Card 1/62

Screening effect for forbidden...

S/048/62/026/001/016/018
B125/B104

and electron phases - Izd. AN SSSR, M.-L., 1959) and the statistical model of Thomas-Fermi-Dirac, and allowing for the atomic electron and nuclear fields. The screening correction for M_0 , for example, is equal to the ratio of M_0 (with allowance for the screening and the finite nuclear dimensions) to M_0 (with allowance for the finite nuclear dimensions only). ✓

If the screening effect for the allowed transitions in the function $F(E, Z)$ is taken into account, the screening corrections for M_0 and N_0 will remain below 0.5%. For the functions P_0 , Q_0 , and R_0 , these corrections amount to 6% at most. There are 1 table and 8 references: 3 Soviet and 5 non-Soviet. The four references to English-language publications read as follows: Reitz J. R., Phys. Rev., 77, 10 (1950); Good R. H., Phys. Rev., 94, 931 (1954); Zweifel, P. F., Phys. Rev., 96, 1572 (1954); Koncinski E. J., Uhlenbeck G., Phys. Rev., 60, 308 (1941).

ASSOCIATION: Leningradskiy gos. universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

Card 2/32

S/048/62/026/001/017/018
B125/B104

AUTHORS: Zyryanova, L. N., and Pantyushin, A. A.

TITLE: The correction to the shape of allowed β^- -spectra, obtained by allowing for the matrix elements of the relativistic operators $\vec{\alpha}$ and γ_5

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 1, 1962, 150 - 152

TEXT: In an approximate study of beta transitions it is possible to represent the leptons either by plane waves $\sim \exp(-ik, \vec{x})$ with $\vec{k} = \vec{p}_e + \vec{p}_\nu$ and with the exponent unity, or by neglecting the matrix elements corresponding to the operators $\vec{\alpha}$ and γ_5 . VA interaction is assumed for the beta transition. The term

$$\frac{i}{2} G \bar{\Psi}_p(x) \gamma_\mu \gamma_\nu \left[\frac{(\mu_p - 1) - \mu_n}{\varepsilon} \right] \Psi_n(x) \left[\frac{\partial}{\partial x_\nu} \Lambda_\mu(x) - \frac{\partial}{\partial x_\mu} \Lambda_\nu(x) \right], \quad (2),$$

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B125/B104

The correction to the shape of...

which is due to a direct weak transition of the type $\pi^- \rightarrow \pi^0 + e^- + \bar{\nu}$, is to be added to the Hamiltonian

$$H = -iG(\psi_p^\dagger(x)\psi_n(x))\Lambda_4(x) - G(\psi_p^\dagger(x)\vec{\alpha}\psi_n(x))\vec{\Lambda}(x) - \lambda G(\psi_p^\dagger(x)\gamma_5\psi_n(x))\Lambda_4(x) + \lambda G(\psi_p^\dagger(x)\vec{\sigma}\psi_n(x))\vec{\Lambda}(x), \quad (1)$$

of beta interaction with $\Delta\mu(x) = \bar{\psi}_e(x)i\chi_\mu(1 + \gamma_5)\psi_\nu(x)$, $G = (1.00 \pm 0.01) \cdot 10^{-49} \text{ erg} \cdot \text{cm}^2$, when using the representation $\gamma_i = \begin{pmatrix} 0 & -i\sigma_i \\ i\sigma_i & 0 \end{pmatrix}$ ($i = 1, 2, 3$), $\gamma_4 = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$, $\gamma_5 = \begin{pmatrix} 0 & -1 \\ -1 & 0 \end{pmatrix}$ and allowing for the renormalizability of the vectorial portion, in analogy to the electromagnetic interaction. Here, μ_p and μ_n denote the total anomalous moments of proton and nucleon magnetons ($e/2M$). The effective Hamiltonian

$$H = G(\psi_p^\dagger\psi_n)u_\sigma^+ \left[1 - \frac{(k\vec{\sigma})}{2M} \right] (1 + \gamma_5) u_\nu - \lambda G(\psi_p^\dagger\vec{\sigma}\psi_n)u_\sigma^+ \left[\vec{\sigma} + ia(k\vec{\sigma}) + \frac{k}{2M} \right] (1 + \gamma_5) u_\nu, \quad (6),$$

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S/048/62/026/001/017/C18
B125/B104

The correction to the shape of...

where $-i\nabla = \vec{k}$ and $a = (\mu_p - \mu_n)/\lambda_e$, is derived from the Hamiltonian following from the equation of motion $\left(\frac{\partial}{\partial x_\mu} \gamma_\mu + M\right)\psi(x) = 0$ for the nucleons

if only the matrix elements are allowed, which obey the selection rules for allowed transitions. Using the customary method, the correction factor

$S_1 = \left[1 + \frac{1}{M} \left(\frac{1}{W} - W_0\right)\right]$ is obtained for the $0 \rightarrow 0^-$ transition spectrum, and $S_2 = 1 + \frac{8}{3} a \left(W - \frac{1}{2} W_0 - \frac{1}{2} \frac{1}{W}\right) - \frac{1}{3M} \left(W_0 - \frac{1}{W}\right)$ (8) for the $\Delta J = 1$ transitions.

Here, W is the total electron energy in terms of mc^2 , and W_0 is its maximum energy. The upper sign denotes β^- -decays and the lower sign stands for β^+ decays. The last expression is consistent with M. Gell-Mann's correction (Phys. Rev., 111, 362 (1958)) if the constant, which the latter did not determine exactly, amounts to $-1/2M$. The correction is of the order of $0.25 \cdot 10^{-2} (1/mc^2)$, and cannot explain the experimentally observed deviations of the P^{32} and Na^{22} spectra from the statistical form.

This correction has the same value for the B^{12} , N^{12} , and In^{114} spectra.

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The correction to the shape of...

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Using a Hamiltonian similar to the one presented here, J. F. Dreitlein (Phys. Rev., 116, 1604 (1959)) calculated the correction to the shape of the beta spectra of unique transitions which are forbidden in first order. For the transition $Y^{90} \rightarrow Zr^{90}$ ($2^- \rightarrow 0^+$), this correction is of the order of $(0.2 - 0.3) \cdot 10^{-2} (1/mc^2)$, and cannot explain the experimentally observed deviation either. Nor can they be explained by allowing for both the correction discussed above and correction (8). There are 1 figure and 5 non-Soviet references. The four most recent references to English-language publications read as follows: Gell-Mann M., Phys. Rev., 111, 362 (1958); Daniel H., Nucl. Phys., 8, 191 (1958); Hamilton J. H., Langer L. M., Smith W. G., Phys. Rev., 112, 2012 (1958); Johnson O. E., Johnson R. G., Langer L. M., Phys. Rev., 116, 1604 (1959); Morita M., Nucl. Phys., 14, 106 (1959).

ASSOCIATION: Leningradskiy gos. universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

Card 4/4

ZYRYANOV, V.N.

Nepheline syenite in the cis-Chingiztau region. Izv. AN Kazakh.
SSr. Ser. geol. 21 no.5:57-67 S.O '64.

(MIR^a 18:5)

1. Institut geologicheskikh nauk im. K.I.Satpayeva AN KazSSR,
Alma-Ata.

89243

S/048/61/025/001/009/031
B029/B067

24.6700(1482, 1385, 1138)

AUTHORS: Vindushka, M., Zyrjanova, L. N.

TITLE: Analysis of β -spectra forbidden in second order

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 1 1961, 51-55

TEXT: The most important previous papers on the analysis of the shape of β -spectra forbidden in second order (Refs.1-6) are based on the ST variety of the theory of β -decay. In the present paper, the non-unique β -spectra forbidden in second order ($\Delta I = 2$, no) are investigated on the basis of the A-V interaction. The values of the nuclear parameters found in these calculations give a satisfactory explanation to the shape of the β -spectra. Four diagrams illustrate the experimental shapes of the form factors of Cl^{36} , Fe^{59} , Cs^{135} , and Cs^{137} β -spectra. The following relation holds for the theoretical shape of β -spectra forbidden in second order if $\Delta I = 2$:

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Analysis of β -spectra...

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$$\begin{aligned} C_2 = & |g_V|^2 \left\{ |R_{ij}|^2 \left[\frac{1}{30} K^2 L_0 - \frac{2}{15} K^2 N_0 + \frac{1}{3} K^2 (2L_1 + M_0) - \right. \right. \\ & \left. - 2KN_1 + \frac{9}{2} L_2 + 3M_1 \right] + |A_{ij}|^2 \left[\frac{1}{12} K^2 L_0 + \frac{3}{4} L_1 \right] - \\ & \left. - i(R_{ij}A_{ij} - \text{c.c.}) \left[\frac{1}{30} K^2 L_0 - \frac{1}{6} K^2 N_0 + \frac{1}{2} KL_1 - \frac{3}{2} N_1 \right] \right\} + \\ & + |g_A|^2 \left\{ |S_{ijk}|^2 \frac{1}{72} \left[\frac{1}{15} K^2 L_0 + 2K^2 L_1 + 15L_2 \right] + \right. \\ & \left. + |T_{ij}|^2 \frac{1}{12} \left[\frac{1}{15} K^2 L_0 + \frac{2}{5} K^2 N_0 + K^2 (L_1 + M_0) + 6KN_1 + 6L_2 + 9M_1 \right] \right\} + \\ & + g_A g_V \left\{ i(R_{ij}T_{ij} - \text{c.c.}) \left[\frac{1}{6} K^2 (L_1 - M_0) + \frac{3}{2} (L_2 - M_1) \right] + \right. \\ & \left. + \frac{1}{4} (A_{ij}T_{ij} + \text{c.c.}) \left[\frac{1}{15} K^2 L_0 + \frac{1}{3} K^2 N_0 + KL_1 + 3N_1 \right] \right\}. \end{aligned}$$

R_{ij} , A_{ij} , T_{ij} , and S_{ijk} denote the nuclear matrix elements; L_1 , M_1 , N_1

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Analysis of β -spectra...

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are the combinations of wave functions of electrons as tabulated by B. S. Dzhelepov and L. N. Zyryanova (Ref. 10); K denotes the energy of the neutrino. If T-invariance is assumed for β -decay, then the relations

$$\frac{R_{ij}}{A_{ij}} = ix, \frac{T_{ij}}{A_{ij}} = 2y, \frac{S_{ijk}}{A_{ij}} = iz$$

will exist between the matrix elements, with x, y, z being real numbers. With $g_A/g_V = 1.2$ an equation is obtained for the theoretical form factor C_2

which depends on the three independent nuclear parameters x, y, z . A comparison of these equations with the experimental form factor of β -spectra yields the values for x, y, z which are in best agreement with the experiment. Table 1 shows the values of the nuclear parameters, which explain the experimental shape of the β -spectra, viz., those values of the nuclear parameters x, y, z , at which the quadratic deviation of the experimental values from the theoretical ones is the least. X

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Nucleus	x	y	z	Nucleus	x	y	z
Cl ³⁶	-0.40	-0.80		I ¹²⁹	-0.05	-0.2	10
Sc ⁴⁶	0.5	0.5	10 \pm 5	Cs ¹³⁵	-0.05	-0.2	10
Fe ⁵⁹	-0.9	-0.3	0	Cs ¹³⁷	-0.05	-0.04	0.5
Tc ⁹⁹	0.35	-0.45	5.5				

Table 1

The A-V variety of β -decay renders agreement with the experiment possible as far as the shape of the spectrum of transitions forbidden in second order is concerned. In the case of Tc⁹⁹, I¹²⁹, and Cs¹³⁵, the slight deviations of the form factors in the soft range of the β -spectrum ($E < 100$ kev) could not be removed even by a proper choice of the parameters. According to estimates by M. Jamada the following holds:

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Analysis of β -spectra...

$$\frac{A_{ij}}{R} = i \frac{\lambda \alpha Z}{2R} ; \quad \frac{2A_{ij}}{T} = \frac{\lambda \alpha Z}{2R} \quad \text{with } 1 + \frac{E_i - E_f}{m_0 c^2} \frac{A^{1/3}}{2}, \quad E_i - E_f = E_0 - 2.5.$$

R denotes the radius of the nucleus. The experimental values of A_{ij}/R_{ij} are in fair agreement with the theoretical ones. However, the equation $A_{ij}/R_{ij} \sim 2A_{ij}/T_{ij}$ does not hold for I^{129} and Cs^{135} . Obviously, concrete assumptions on the properties of the nucleus are necessary for an estimate of these matrix elements. The theoretical and experimental form factors are compared with one another in Table 2:

X

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Analysis of β -spectra...

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Table 2

Nucleus	$\left(\frac{A_{ij}}{R_{ij}}\right)_{\text{theor}}$ $= \left(\frac{2A_{ij}}{T_{ij}}\right)_{\text{theor}}$	$\left(\frac{A_{ij}}{R_{ij}}\right)_{\text{exp}}$	$\left(\frac{2A_{ij}}{T_{ij}}\right)_{\text{exp}}$	Nucleus	$\left(\frac{A_{ij}}{R_{ij}}\right)_{\text{theor}}$ $= \left(\frac{2A_{ij}}{T_{ij}}\right)_{\text{theor}}$	$\left(\frac{A_{ij}}{R_{ij}}\right)_{\text{exp}}$	$\left(\frac{2A_{ij}}{T_{ij}}\right)_{\text{exp}}$
Cl ³⁶	4.05	2.5 ^{+0.05}	1.25 ^{+0.03}	J ¹²⁹	10.3	20 ⁺¹⁰ ₋₅	5 ⁺⁴ ₋₃
Sc ⁴⁶	6.27	≥ 2	≥ 2	Cs ¹³⁵	10.7	20 ⁺¹⁰ ₋₅	5 ⁺⁴ ₋₃
Fe ⁵⁹	7.38	3 ⁺⁵	3 ⁺⁵	Cs ¹³⁷	12.5	20 ⁺¹⁰ ₋₅	25 ⁺¹² ₋₁₀
Tc ⁹⁹	8.07	2.9 ^{+0.5}	2.2 ^{+0.4}				

The values of the matrix elements $|A_{ij}|^2$ and of the form factor averaged

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over the β -spectrum are compiled in Table 3. This is the reproduction of a lecture read at the Tenth All-Union Conference on Nuclear Spectroscopy, Moscow, January 19-27, 1960. There are 4 figures, 3 tables, and 12 references: 3 Soviet-bloc and 9 non-Soviet-bloc.

X

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89244

S/048/61/025/001/010/031
B029/B067

24.6510

AUTHORS: Zyryanova, L. N., and Mikhaylov, V. M.

TITLE: Scheme of the reduced lifetime of β -transitions forbidden in various orders

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 1, 1961, 56-60

TEXT: The ft -values for all β -transitions of nuclei have been calculated. The reduced lifetime of a β -transition which is directly related to the nuclear matrix elements, frequently helps to detect details in the nuclear structure. The experimental results of synoptic papers by B. S. Dzhelepov and L. K. Peker (Ref. 1), and D. Strominger et al. (Ref. 2), and data from papers published up to the beginning of 1960 served as a starting material. The 1100 most reliable cases of the 2400 β -transitions known so far were selected for a systematic determination of ft . For most of the β -transitions, ft was calculated from the formulas for allowed β -transitions. The function $f = \int_0^{E_0} F(E, Z) E p(E_0 - E)^2 dE$ was represented by tabulated values

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Scheme of the reduced ...

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(Ref. 3) calculated in consideration of the Coulomb field, the screening effects, and the finite dimensions of the nucleus. For the case of transitions caused by capture of an orbital electron, the f_K and f_L values as determined by I. M. Band et al. (Refs. 4, 5) in consideration of the above-mentioned effects were used. The integral function of a forbidden decay

$f_n = \int_0^E C_n F(E, Z) E p(E_0 - E)^2 dE$ contains the known form factor C_n . The exact

values of this function are considered here. Fig. 1 shows a histogram for log ft of β -transitions separated according to the usual selection rules: allowed transitions (1), and transitions forbidden in first (2) and second (3) order. The distributions for allowed and first-order forbidden transitions overlap at log ft. Therefore, the change in parity during the transition must be known for the determination of the spin. The known group of "over-allowed" transitions (log ft < 3.8) is particularly conspicuous in the histogram for allowed transitions (Fig. 2). This group also comprises transitions between mirror nuclei and 0-0 transitions.

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Scheme of the reduced ...

The curve drops quite slowly toward high values of $\log ft$. Fig. 3 shows histograms of first-order forbidden transitions for the spin variations $\Delta J = 0, 1, 2$. In the case of unique groups, the values of $\log f, t$ elucidate the connection with the nuclear structure much better than the values of $\log ft$. A considerable group of "favorable" forbidden transitions ($\log ft \approx 6$) which, in essential, contains the β -transitions of nuclei whose Z and N are near the doubly occupied shells: $Z = 82, N = 126$. The group of "favorable" transitions is less distinct in $\Delta J = 1$ transitions. Fig. 4 illustrates the distribution of $\log ft$ for second-order forbidden transitions. The distributions for allowed and second-order forbidden transitions contain a central group with a noticeable maximum, making it possible to calculate the mean value of $\log ft$ for every group (see Table). The figures in parentheses are the numbers of β -transitions into the group that is forbidden in the respective order. Besides, $\log ft$ does not directly depend on the number of particles in the nucleus. In some first-order forbidden transitions, $\log ft$ decreases considerably with increasing number of particles in the nucleus. Fig. 6 illustrates the character of the function $\log(ftZ^2)$ for $\Delta J = 0$ transitions. The authors thank B. S. Dzhelepov for his interest in the present study, and F. I. Langelen for his assistance in calculations.

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Scheme of the reduced ...

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This is the reproduction of a lecture read at the Tenth All-Union Conference on Nuclear Spectroscopy, Moscow, January 19-27, 1960. There are 6 figures, 1 table and 13 references: 8 Soviet-bloc and 5 non-Soviet-bloc. X

Legend to Table: Mean values of $\log ft$; in parentheses the numbers of events; 1) order of forbiddenness; 2) total mean values; 3) mean values for nuclei 4) with even A, 5) with odd A; 6) allowed, 7) over-allowed, 8) unfavorable, 9) first-order forbidden, 10) second-order forbidden, 11) favorable, 12) unfavorable, 13) unique.

Card 4/6

ZIRYANOVA, L.N.; DZHELEPOV, B.S., otv.red.; TSVETKOV, N.V., red.izd-va;
~~BOCHEVER~~, V.T., tekhn.red.

[Unique beta-transitions] Unikal'nye beta-perekhody. Moskva,
Izd-vo Akad.nauk SSSR, 1960. 96 p. (Svoistva atomnykh iader,
no.2). (MIRA 13:9)

1.Chlen-korrespondent AN SSSR (for Dzhelepov).
(Nuclei, Atomic—Spectra)

PHASE I BOOK EXPLOITATION

SOV/4902

Zyryanova, L. N.

Unikal'nyye beta-perekhody (Unique β -Transitions) Leningrad, Izd-vo AN SSSR, 1960. 96 p. Errata slip inserted. (Series: Svoystva atomnykh yader, vyp.2)

Sponsoring Agency: Akademiya nauk SSSR. Radiyevyy institut imeni V. G. Khlopina.

Resp. Ed.: B. S. Dzhelepov, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: N. V. Tsvetkov; Tech. Ed.: V. T. Bochever.

PURPOSE: This book is intended for those working in nuclear spectroscopy.

COVERAGE: The book reviews the existing theoretical and experimental results on beta-transitions of nuclei which are related to the group of unique forbidden. The form of beta-spectra, the total probability of transition by beta-decay, and K- and L-capture for transitions to and including the third forbiddenness are discussed. No personalities are mentioned. There are 99 references: 15 Soviet, 79 English, 4 French,
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Unique β -Transitions

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and 1 German.

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Unique β -Transitions

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AVAILABLE: Library of Congress

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JA/dfk/os
4/14/61

AKIM, L.Ye., kand.tekhn.nauk; ZYRYANOVA, L.V., inzh.; GORSKIY, P.I.,
assistant

Use of surface active substances in the refining of viscose
pulp. Bum.prom. 34 no.9:5-7 S '59. (MIRA 13:2)

1. Leningradskiy tekhnologicheskii institut tsellyulozno-
bumazhnoy promyshlennosti.
(Woodpulp) (Surface active agents)

21(7)

AUTHOR:

Zyryanova, L. N.

SOV/48-23-7-19/31

TITLE:

On the Calculation of the Reduced Life ft of the Nuclei for Unique β -Transitions (K vychisleniyu privedennogo vremeni zhizni yader ft dlya unikal'nykh β -perekhodov)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 7, pp 875-879 (USSR)

ABSTRACT:

In the introduction, the formula for calculating the probability of a β -decay of a nucleus is first indicated, and then the formula for the life of a nucleus is derived by means of the Fermi integral for permissible β -transitions. Subsequently, the formula for the life of the nuclei is indicated for forbidden β -transitions, and the determination of values of the Fermi integral for transitions of the first and second prohibition is outlined as the object of this paper. From the form factors for the transitions of the first and second prohibition developed in a previous paper (Ref 1), the values of the ratio between the values of the Fermi integral for forbidden transitions and the values for permissible transitions are calculated. Tables 1 and 2 indicate these values for the electron emission in the first and second prohibition as well as for the positron

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On the Calculation of the Reduced Life ft
of the Nuclei for Unique β -Transitions

SOV/48-23-7-19/31

emission in the first and second prohibition. The probability of the decay of a nucleus by capture of an orbital K-electron is also investigated, and the corresponding values for the first and second prohibition are compiled in tables 5 and 6. The product ft is calculated with the values thus obtained, and table 7 brings some examples. Finally, the authoress thanks B. S. Dzhelepov for his attention paid to the work, and F. I. Langelen for his help in the calculations. There are 7 tables and 7 references, 3 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo gos. universiteta imeni A. A. Zhdanova (Scientific Research Institute of Physics of the Leningrad State University imeni A. A. Zhdanov)

Card 2/2

AUTHORS: Band, I. M., Zyryanova, L. N., SOV/48-22-8-10/20
Suslov, Yu. P.

TITLE: Table of Functions Required for the Determination of the
Probability of Allowed and of Forbidden L-Captures of Nuclei
(Tablitsy funktsiy, neobkhodimyykh dlya opredeleniya veroyat-
nosti razreshennogo i zapreshchennogo L-zakhvata yader)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958,
Vol. 22, Nr 8, pp. 952 - 967 (USSR)

ABSTRACT: In this paper the authors calculated the functions required
in the theory of nuclear transitions caused by the capture
of an orbital L-electron. An analysis of the nuclear electron
capture branch is necessary in all cases of positron radio-
activity. In recent years the interest for capture processes
has greatly increased in connection with the intensive in-
vestigation of neutron-deficient isotopes. In 1956 detailed
tables were published (Ref 1) which permit an analysis of
the K-capture branch. For the L-capture, however, numerical
computations are known only for a few values of Z, although
they are of great importance in the experimental study of

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Table of Functions Required for the Determination of the Probability of Allowed and of Forbidden L-Captures of Nuclei SOV/48-22-8-10/20

decay schemes. This proves to be very inconvenient in practical work. In order to be able to compute the probabilities of nuclear transitions caused by an L-capture a number of coefficients which depend upon the wave functions of the L-electrons must be known. In the compilation of these coefficients in tables the effects of the shielding effect and of the final dimensions of the nucleus were taken into account. The compilation was based upon the data concerning the L_I , L_{II} and L_{III} electrons (Table 1,2). When these coefficients are known it is possible to perform an analysis of the forbidden nucleus transitions caused by an L-capture. Thus a number of basic data can be obtained on the modification of the nuclear state in β -transitions, if the analysis of the positron decay branch and the K-capture is also taken into consideration. There are 4 figures, 10 tables, and 9 references, 1 of which is Soviet.

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Table of Functions Required for the Determination of the Probability of Allowed and of Forbidden L-Captures of Nuclei SOV/48-22-8-10/20

ASSOCIATION: Leningradskiy gos. universitet im. A.A. Zhdanova (Leningrad State University imeni A.A. Zhdanov)

Card 3/3

ZYRYANOVA. L. N. Cand Phys-Math Sci -- (diss) "Theoretical ^{form} ~~shape~~ of beta-spectrums
with calculation of ^{the} ~~the~~ electric atom field." Len, 1957. 16 pp 20cm. (Len Order
of Lenin State Univ im A. A. Zhdanov), 100 copies. (KL, 15-57, 104)

ZYRYANOVA, L.N., inzhener.

Adjustment and operation of floating regulators used in pulp concentration.
Bum. prom. 28 no.6:19-21 Je '53. (MLHA 6:6)

1. Kondopozhskiy tsellyulozno-bumazhnyy kombinat. (Paper-making machinery)

BAND, I.M.; ZYRYANOVA, L.N.; SUSLOV, Yu.P.

Table of the necessary function for probability determination of
allowed and forbidden L-capture by a nucleus. Izv. AN SSSR.
Ser. fiz, nauk 22 no.8:952-967 Ag '58. (MIRA 11:10)

1. Leningradskiy gosudarstvennyy universitet imeni A.A. Zhdanova.
(Electrons--Capture)

Kashumitkov, M. N., and Zyrvanov, A. V. KAZAKHSTAN ANDALUSITE. *Oymyakon, 10 (11-5) 21-28 (1955).*

Of all the Soviet Union, Kazakhstan is particularly rich in deposits of andalusite. Many of these deposits are far removed from railroads, and their exploitation is not considered at present. Possible deposits, either presently exploited or suitable for immediate exploitation, are described. The Semiz-Buga deposit located 140 km. east of Karagand is estimated to contain 100,000 tons of ore. The andalusite content is 30 to 81%, and there is 12 to 51% pyrophyllite. The rich ores contain 52% Al_2O_3 , less than 2% Fe_2O_3 , and less than 6% $K_2O + Na_2O$. The medium-grade ores of this deposit contain 40% Al_2O_3 ; the low-grade ores contain 15 to 20% andalusite. The Kourad deposit is estimated at several million tons. The northern part of this deposit comprises an area of 1,00,000 sq. m. and its southern part is approximately 200,000 sq. m. The ore of the northern deposit contains over 50% andalusite. The Yuzhnye Borly deposit is located 27 km. northwest of Kourad. It consists of quartzites containing 10 to 60% andalusite and stretches over an area of 205,000 sq. m. In one of the better surveyed parts of this area the andalusite content is 60 to 78%. The Bes-Bek deposits are located 150 km. southeast of Karkaralinsk and comprise 24.5 sq. km. In some of its parts were found pockets containing 20 to 60% andalusite. The Ak-Sai deposit is located 150 km. south of Karkaralinsk in the foothills of the Kyzyl-Ruk Mountains. The secondary quartzites containing 10 to 70% andalusite stretch over an area of 3 sq. km. In addition, four outcrops

and numerous small veins of almost pure andalusite were found. The Kara-Chekin deposit, 75 km. south of the Bes-Bek deposit, consists of loose quartz-muscovite minerals containing 60 to 70% andalusite and approximately 15% kaolinite. The Kurpetal deposit, 150 km. southwest of Karkaralinsk, comprises 10 sq. km. of secondary quartzites. Within it are three areas containing andalusite. The northeastern area, 280 x 400 m., contains 30 to 80% andalusite. South of it is another 1000 x 250 m. containing 30 to 60% andalusite and 10 to 30% pyrophyllite. The third area, to the northwest, contains 30 to 80% andalusite. Several kilometers north of Kurpetal is the Chok-Parta deposit, comprising 150,000 sq. m. and consisting of secondary quartzites containing 10 to 60% andalusite, with a maximum of 85%. Forty kilometers southeast of the Monty Karagand Railroad north of Kourad is the Sheshen'-Kara deposit. It consists of three areas, containing 15 to 43%, 40 to 60%, and 60 to 70% andalusite. This area is only partly surveyed and probably contains more than is presently estimated. The Altai deposit is located 17 km. from the Kamengorsk. The minerals found there are quartz, disthene, andalusite, sericite, and, as accompanying minerals, rutile, kyanite, pyrophyllite, and ferruginous compounds. The combined content of andalusite and disthene is 20 to 50%. The reserve of these minerals is estimated at several million tons. The

AKIM, L.Ye.; ZYRYANOVA, L.V.; GORSKIY, P.I.

Chlorine dioxide bleaching of reed pulp. Bum.prom. 36 no.2:10-11
F '61. (MIRA 14:2)

1. Leningradskiy tekhnologicheskii institut tsellyulozno-bumazhnoy
promyshlennosti.

(Woodpulp)

(Chlorine oxide)

✓ 2014. Determination of small amounts of Fe in
ores. I. A. Blyum and N. G. Zhiranova (Lab. of
the G.I. Gerasimov Institute of Geochemistry, U.S.S.R.
Acad. Sci., Moscow, U.S.S.R.) Determination of Fe in
ores of small amounts (0.1 to 2 g) of the
ores first heated to 1000°C and 1500°C. The
sulfide ores are fused in an iron crucible with 5 to
10 g of Na_2CO_3 and the melt is extracted with water.
The solution is diluted to a vol. of 200 to 300 ml,
and treated first with HCl to dissolve hydroxides,
then with aq. NH_3 . The ppt. is filtered off and
dissolved in 40 to 50 ml of a mixture (4:1) of dil.
 H_2SO_4 (1 + 1) and conc. HCl or for germanium
ores, in 50 to 60 ml of dil. HCl (3 + 1) followed by
boiling with 1 to 2 ml of H_2O_2 for 30 to 60 min.
to reduce the vol. to 15 to 30 ml, and then mixing
with 40 to 50 ml of dil. H_2SO_4 (1 + 1). The
solution is treated with 10 ml of HBr and distilled
in a stream of CO_2 . When the temp. reaches
180°C, 15 to 20 ml of HBr are introduced dropwise
at 2 to 3-sec. intervals from a dropping funnel.
The final temp. is 215° to 230°C. The distillate
(150 to 200 ml) is mixed with 50 mg of FeCl_3 or
 $\text{Fe}_2(\text{SO}_4)_3$ and pptd. at 70° to 80°C with aq. NH_3 .
The ppt. is filtered off, washed with 2 per cent
 NH_4Cl solution and dissolved in hot dil. HCl
(1 + 1), and the solution is made up to 10 ml with
dil. HCl (1 + 1). To 10 ml of the solution is added
0.2 g of iron powder reduced in H_2 and, after 10 min.,
10 ml are filtered and the tin content is determined
polarographically after addition of four drops of
0.5 per cent. gelatin solution and passage of H_2 for
2 to 3 min.
G. S. Serebri

BLYUM, I.A.; ZYRYANOVA, N.G.

Determining small amounts of tin in ores. Zav.lab. 22 no.1:
46-47 '56. (MLRA 9:5)

1. Laboratoriya tresta "Uraltsvetmetrasvedka".
(Tin) (Ores--Analysis)

ZYRYANOVA, N.I.

Changes with age in some morphological characteristics of roach.
Vop. ikht. no.13:134-138 '59. (MIRA 13:3)

1.Kirovskiy gosudarstvennyy pedagogicheskiy institut im. V.I. Lenina.
(Roach (Fish))

LYRYANOVA, T. A.

"Benzanthronyl-Sulphanic Acid," Zhur. Obshch.

Khim., 14, Nos. 9-10, 1944. Mbr., Chair Dyestuffs,

Leningrad Chemico-Technol. Inst.,

-1944-.

1ST AND 2ND ORDERS																		3RD AND 4TH ORDERS																	
PROCESS AND PROPERTIES INDEX																																			
<p><i>ca</i></p> <p>Benzenethiopyranic acid. I. S. Ioffe, T. A. Zvyagin, and V. E. Susharina. <i>J. Gen. Chem. (U.S.S.R.)</i> 14, 985-7 (1966) (English summary).—On reduction of 1'-nitrobenzanthrone with hydrosulfite in alk. soln. there is formed, besides the main product (1'-aminobenzanthrone), a small amt. of 1'-benzanthropyranic acid, which has indicator properties (yellow changing to blue in strong alkali). The acid is best isolated as follows: the alk. filtrate from the aminobenzanthrone is satd. with CO₂, and the yellow soln. is cooled to a small vol. and cooled to yield a yellow ppt. of the above acid, which is purified by crystn. from aq. EtOH. The blue (alk.) color of the acid reverts to yellow at pH 11.3. The color changes are explained by suitable tautomeric changes. The acid is poorly stable on heating in solns., esp. in acid media.</p> <p style="text-align: right;">G. M. Kozolapoff</p>																		<p><i>10</i></p>																	
<p>COMMON ELEMENTS</p> <p>COMMON VARIABLES INDEX</p> <p>ASB-SEA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>1ST AND 2ND ORDERS</p> <p>3RD AND 4TH ORDERS</p>																																			

New method of evaluating the physico-mechanical properties of coke. N. S. Gryaznov and T. G. Zyryanova. *Coke and Chem.* (U. S. S. R.) 9, No. 10-11, 9-13 (1959); *Chimie et Industrie* 43, 800 (1940).—The essential parameters of the phys.-mech. properties of metallurgical coke are: (a) degree of variation in the granulometric compn. of coke during the deformation process (characterizing the mech. strength), (b) degree of homogeneity of the pieces of coke resulting from the deformation; (c) degree of residual fissuring (characterizing the homogeneity of the coke from the standpoint of texture, in the high-temp. zones).

A. Papineau-Couture

COMMON ELEMENTS										COMMON VARIABLE									
1ST AND 2ND QUANTITIES										3RD AND 4TH QUANTITIES									
<p>Experimental coking of the Minsuain Basin gas coals. N. S. Goryunov and T. G. Zoryanova. <i>Coke and Chem.</i> (U. S. S. R.) 1939, No. 4, 14-20; <i>Khim. Refrat. Zh.</i> 1939, No. 12, 80. -- A mixt. of Kuzbass and coal with 30- 40% Alimush coal (50-in. layer), produces a coke that satis- fies the standard requirements with a drum test of 200-312 kg. Fine grinding of the coal is necessary for the produc- tion of high-grade coke. Data of plastometric investiga- tions and tech. analyses of the mixts. are given.</p> <p>W. R. Henn</p>																			
<p>ASTM-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																			

1ST AND 2ND GROUPS		PROPERTIES AND PROPERTIES INDEX	
<p>New Method of Evaluating the Physico-Mechanical Properties of Coke. N. S. Gryaznov and T. G. Zyranyan, (Koks i Khimiya, 1939, No. 10-11, pp. 9-13). (In Russian). The authors discuss how the quality of coke affects the working of a blast-furnace. They are of the opinion that the following factors are of primary importance: (1) The extent to which the screen analysis of the coke is changed after subjecting it to a drum test; (2) the degree of uniformity in the lump size after the drum test; and (3) the degree of fissuring after subjecting the sample to a twelvefold dropping testing. The third factor was found to be independent of the degree of fissuring before testing. The authors derived coefficients characterising the first two factors by evaluating the drum test results.</p>			
<p>ASH-SEA METALLURGICAL LITERATURE CLASSIFICATION</p>			
SIGNATURE		SIGNATURE	
DATE		DATE	
INITIALS		INITIALS	

A New Method of Evaluating the Physico-Mechanical Properties of Coals. N. S. Gryaznov and T. I. Zyryanova. (Iron and Steel Institute, 1941, Translation Series, No. 53). An English translation of a paper which was published in Koks i Khimiya, 1939, No. 10-11, pp. 9-13. (See Journ. I. and S.I., 1940, No. 11, p. 134 A).

USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26691.

Author : Zyryanova, T.A., Petrov, A.A.

Inst :

Title : Research in Region of Conjugate Systems.
LXIII. Action of Benzenesulfodichloroamide
on Piperylene Solutions in Alcohols.

Orig Pub : Zh. obshch. himii, 1956, No. 6, 1593 - 1601.

Abstract : The action of benzenesulfodichloroamide (I) on solutions of piperylene (II) in CH_3OH and $\text{C}_2\text{H}_5\text{OH}$ was studied. It is shown that the addition takes place in the 3,4 and 1,4 positions of the diene system of II and produces a mixture of 55 to 60% of $\text{CH}_3\text{CH}=\text{CHCH}(\text{OR})\text{CH}_2\text{Cl}$ (III) and 45 to 40% of $\text{CH}_3\text{CH}(\text{OR})\text{CH}=\text{CHCH}_2\text{Cl}$ (IV), where $\text{R} = \text{CH}_3$ (IIIa and IVa respectively), or $\text{R} = \text{C}_2\text{H}_5$ (IIIb and IVb). It is established,

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Leningrad Tech. Inst. in Leningrad.

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Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26691.

that the increase of the polarization of the diene system in II compared with divinyl (under the influence of the CH_3 radical in the position 1) results in the facilitation of the addition into the 1,4 positions. The structure of IIIa and IVa is proved: a/ by the ozonization of the received reaction mixture with following oxidation of the products of dissociation of ozonides by KMnO_4 and formation of CH_3COOH and CH_2ClCOOH ; b/ by the formation of the mixture of $\text{CH}_3\text{CH}(\text{OCH}_3)\text{C}_3\text{H}_7$ (Va) and $\text{CH}_3\text{CH}(\text{OCH}_3)\text{CH}=\text{CHCH}_3$ (VI) and of the mixture $\text{C}_3\text{H}_7\text{CH}(\text{OCH}_3)\text{CH}_2\text{Cl}$ (VIIa) and IIIa in the molar ratio of mixtures 2 : 3 at the hydrogenation of the mixture of IIIa with IVa; at the hydrogenation on colloid Pt, the mixture of Va with VI (received in the result of the reduction of IVa) produces Va, the

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USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26691.

OCH_3 group (at $\text{C}(3)$ of the diene system) in III is proved; c/ at the action of alcohol alkali on the received mixture of IIIa and IVa, $\text{CH}_3\text{CH}(\text{OCH}_3)=\text{CH}_2$ (IXa) and $\text{CH}_3\text{CH}(\text{OCH}_3)-\text{CH}=\text{CHCH}_2\text{OCH}_3$ (Xa) was obtained in the molar ratio of 4 : 3; the structure of IXa (obtained from IIIa) is proved by its transformation into methylpropenylketone (by the action of 5% H_2SO_4 in the cold), and the structure of Xa (obtained from IVa) is proved by the formation of $\text{CH}_3\text{CH}(\text{OCH}_3)\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_3$ at the hydrogenation of Xa on colloid Pt. It was established that together with the reaction of addition at the action of I on alcohol solutions of II, an insignificant chlorination of II with the replacement of hydrogen took place (compare with RZhKhim, 1955, 37172). 135 g of

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